CLAIMS

1. A deburring tool comprising:

a housing;

a pneumatic motor mounted in the housing and including a back wall and a spindle having an outer end;

a pivot bearing mounted adjacent the back wall of the pneumatic motor;

a connector extending from the back wall of the pneumatic motor and connected to the pivot bearing for permitting the pneumatic motor to move with the pivot bearing; and

a compliance device extending around the pneumatic motor at a location between the back wall and the outer end of the spindle for centering the pneumatic motor but wherein the compliance device is yieldable in response to the deburring tool encountering a disturbing force.

2. The deburring tool of claim 1 wherein the pivot bearing permits the pneumatic motor to pivot about the pivot bearing.

3. The deburring tool of claim 1 wherein the compliance device includes a dual pressure range.

4. The deburring tool of claim 3 wherein the compliance device includes a series of movable pistons disposed around the pneumatic motor and which are biased by source of compressed air, and wherein each piston is adapted to operate in at least two modes and wherein the effective area of each piston exposed to the source of compressed air varies from one mode to the other mode.

5. The deburring tool of claim 4 wherein each piston is provided with a removable seal, and wherein in one mode of operation the seal is secured to the piston and in the other mode of operation the seal is removed from the piston.

6. The deburring tool of claim 1 wherein the pneumatic motor includes a rear portion and wherein the mass of the rear portion is greater than the mass of the spindle.

7. The deburring tool of claim 6 wherein the spindle includes an elongated projection and wherein the compliance device extends around the elongated projection of the pneumatic motor.

8. The deburring tool of claim 7 wherein the pivot bearing includes a socket and at least a partial ball movably mounted in the socket and including an opening; and wherein the connector extends into the opening of the partial ball and connects to the partial ball.

8. The deburring tool of claim 8 wherein the connector includes a stud that extends from the back of the pneumatic motor into the opening of the ball, the stud having an end portion that includes an opening formed therein, and wherein a spreading plug is secured within the opening of the stud causing the opening of the stud to spread and engage the ball.

10. The deburring tool of claim 1 wherein the pivot bearing includes a locating pin that limits movement of the pivot bearing.

11. The deburring tool of claim 1 wherein the housing includes an end plate disposed adjacent the back of the pneumatic motor, and wherein the pivot bearing is mounted to the end plate.

12. The deburring tool of claim 1 wherein the housing includes a surrounding sidewall structure wherein the tool includes an air inlet that extends through the sidewall structure and is connected to the pneumatic motor for delivering air to the motor.

13. The deburring tool of claim 1 including a tool secured to the spindle.

14. A deburring tool comprising:

a housing;

a pneumatic motor mounted in the housing and including a back portion and a front portion;

a pivot bearing mounted adjacent the back portion of the pneumatic motor; and

a connector extending between the back portion of the pneumatic motor and the pivot bearing for connecting the pneumatic motor to the pivot bearing such that the pneumatic motor moves with the movement of the pivot bearing.

15. The deburring tool of claim 14 wherein the back portion of the motor includes a back wall and wherein the connector extends outwardly from the back wall of the pneumatic motor into and through an opening formed in the pivot bearing.

16. The deburring tool of claim 15 wherein the connector includes a terminal end that extends into the opening of the pivot bearing and wherein an opening is formed within the terminal end of the connector for receiving a spreading plug that spreads the terminal end of the connector into engagement with the pivot bearing.

17. The deburring tool of claim 16 wherein the pivot bearing includes a socket and a ball movably contained within the socket.

18. The deburring tool of claim 17 including a pin extending through the socket into an opening formed on the ball.

19. The deburring tool of claim 14 wherein the connector and pneumatic motor move about the pivot bearing.

20. A deburring tool comprising:

a housing;

a pneumatic motor mounted in the housing and including a back portion and a front portion and wherein the back portion includes a mass greater than the mass of the front portion;

a mounting structure disposed at least partially within the housing for moveably mounting the pneumatic motor such that the motor may move with respect to the housing; and

a compliance device extending around the front portion of the pneumatic motor for restricting the movement of the pneumatic motor and applying a compliance force to the pneumatic motor.

21. The deburring tool of claim 20 wherein the mounting structure is disposed about a rear portion of the housing.

22. The deburring tool of claim 20 wherein the back portion includes a cross-sectional area greater than the front portion.

23. The deburring tool of claim 22 wherein the front portion of the pneumatic motor includes a drive shaft and wherein the drive shaft extends through the compliance device.

24. The deburring tool of claim 20 wherein the center of gravity of the pneumatic motor lies within the back portion, and wherein the compliance device is spaced from the center of gravity of the pneumatic motor.

25. A deburring tool comprising:

a housing;

a pneumatic motor mounted in the housing and including a front portion and a rear portion;

a connector extending from the pneumatic motor;

wherein the connector is mounted for pivotable movement such that the pneumatic motor may move with respect to the housing; and

a compliance device disposed adjacent the front portion of the pneumatic motor for engaging and centering the front portion of the pneumatic motor but wherein the compliance device is yieldable in response to the deburring tool encountering a disturbing force.

26. The deburring tool of claim 25 wherein the connector connects to a movable member that is spaced from the pneumatic motor.

27. The deburring tool of claim 26 wherein the movable member is a pivot bearing.

28. The deburring tool of claim 27 wherein the pneumatic motor includes a back wall and wherein the connector extends from the back wall and connects to the pivot bearing.

29. The deburring tool of claim 25 wherein the compliance device extends around the front portion of the pneumatic motor, wherein the pneumatic motor includes a back wall and the connector extends from the back wall and connects to a movable member that permits the pneumatic motor to move relative to the housing.

30. The deburring tool of claim 29 wherein the movable member comprises a pivot bearing.